

What is claimed:

1. A vacuum filtration apparatus comprising:

a base containing a funnel well with a filter seal surface disposed adjacent to the bottom of the inside wall of said funnel well, with a filter support means disposed in the bottom of said funnel well inside of said filter seal surface, with an outlet port disposed below said filter support means, said outlet port being in fluid flow communication with said filter support means,

a funnel with an open top, with the bottom outside portion of said funnel releasably attached with an interference fit to the inside wall of said funnel well of said base, said funnel containing an integral flexible filter seal disposed around the bottom of said funnel,

a filter means disposed in the bottom portion of said funnel well with the downstream surface of said filter means lying in the same plane as said filter seal surface, said filter means releasably sealed between said filter seal surface of said base and said integral flexible seal of said funnel,

whereby said integral flexible filter seal provides a leak tight releasable seal between said filter seal surface of said base and said integral flexible seal of said funnel for varying thickness' of said filter means.

2. The vacuum filtration apparatus of claim 1 wherein the releasable attachment between said funnel and said base is an interference fit between one or more integral flexible funnel seal rings protruding from the bottom outer periphery of said funnel, and the inside wall of said funnel well of said base,

whereby said one or more integral flexible funnel seal rings provide a releasable attachment

between said funnel and said base, over the normal
production range of dimensional tolerances of said
interior side wall of said funnel well of said base,
and over the normal production range of dimensional
5 tolerances of the outer edge of said one or more
integral flexible funnel seal rings of said funnel.

3. The vacuum filtration apparatus of claim 1
wherein the top surface of the filter support means
is disposed below said filter seal surface, thereby
10 creating a pad well below said filter seal surface.

4. The vacuum filtration apparatus of claim 3
wherein an absorbent pad is disposed in said pad
well, with the downstream surface of said absorbent
pad resting on the top surface of said filter support
15 means, and with a portion of the downstream surface
of said filter means resting on the upstream surface
of said absorbent pad.

5. The vacuum filtration apparatus of claim 4
wherein the thickness of said absorbent pad is
20 substantially greater than the height of said pad
well,

whereby the outer periphery of the absorbent pad
is compressed by the filter means,

whereby said absorbent pad exerts an upward
25 force on the downstream side of said filter means,

whereby said filter means remains in tension in
both the dry and wet states,

whereby said filter means remains wrinkle free
in both the dry and wet states.

6. The vacuum filtration apparatus of claim 1
wherein a portion of the filter means that is in
contact with said filter seal surface, is sealed to
said filter seal surface with a heat seal, said seal
forming a closed loop.

7. The vacuum filtration apparatus of claim 1
wherein a portion of the filter means that is in
contact with said filter seal surface, is sealed to

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said filter seal surface with an ultrasonic seal,
said seal forming a closed loop.

8. The vacuum filtration apparatus of claim 1
wherein a portion of the filter means that is in
5 contact with said filter seal surface, is sealed to
said filter seal surface with a solvent seal, said
seal forming a closed loop.

9. The vacuum filtration apparatus of claim 1
wherein said base contains one or more lid clamp tabs
10 protruding from the outside wall of said base, with
the bottom edge of each lid clamp tab of said base
being equidistant from the top outer wall of said
base.

10. The vacuum filtration apparatus of claim 9
15 wherein said funnel contains one or more lid clamp
tabs protruding from the outside wall of said funnel,
with the bottom edge of each lid clamp tab of said
funnel being equidistant from the top wall of said
funnel, and with the outside diameter of the lid
20 clamp tabs of said funnel being equal to the outside
diameter of the lid clamp tabs of said base.

11. The vacuum filtration apparatus of claim 10
wherein said vacuum filtration apparatus contains a
lid, with the outer wall of said lid being segmented
25 by a plurality of slots in said outer wall, with each
slot creating a gap in the bottom surface of said
outer wall,

with the height of said slots being less than
the height of the inner surface of said outer wall of
30 said lid,

with the height of the inner surface of said
outer wall of said lid being equal to or greater than
the distance between the bottom edge of each lid
clamp tab of said funnel and the top wall of said
35 funnel, and with the height of inner surface of said
outer wall of said lid being equal to or greater than
the distance between the bottom edge of each lid

clamp tab of said base and the top outer wall of said base,

with the diameter of said inner surface of said outer wall of said lid being less than the outside diameter of the lid clamp tabs of said base,

whereby said plurality of slots in said outer wall of said lid allows said outer wall of said lid to flex,

whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the one or more lid clamp tabs of said funnel with a fit that prevents said lid from accidentally disengaging from said funnel, and allows said lid to be removed from said funnel with one hand, as the outside diameter of the lid clamp tabs of said funnel vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances,

whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the one or more lid clamp tabs of said base with a fit that prevents said lid from accidentally disengaging from said base, and allows said lid to be removed from said base with one hand, as the outside diameter of the lid clamp tabs of said base vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances.

12. The vacuum filtration apparatus of claim 2 wherein the top surface of the filter support means is disposed below said filter seal surface, thereby creating a pad well below said filter seal surface.

13. The vacuum filtration apparatus of claim 12 wherein an absorbent pad is disposed in said pad well, with the downstream surface of said absorbent

pad resting on the top surface of said filter support means, and with a portion of the downstream surface of said filter means resting on the upstream surface of said absorbent pad.

5 14. The vacuum filtration apparatus of claim 13 wherein the thickness of said absorbent pad is substantially greater than the height of said pad well,

 whereby the outer periphery of the absorbent pad
10 is compressed by the filter means,

 whereby said absorbent pad exerts an upward force on the downstream side of said filter means,

 whereby said filter means remains in tension in both the dry and wet states,

15 whereby said filter means remains wrinkle free in both the dry and wet states.

 15. The vacuum filtration apparatus of claim 14 wherein said base contains one or more lid clamp tabs protruding from the outside wall of said base, with
20 the bottom edge of each lid clamp tab of said base being equidistant from the top outer wall of said base.

 16. The vacuum filtration apparatus of claim 15 wherein said funnel contains one or more lid clamp
25 tabs protruding from the outside wall of said funnel, with the bottom edge of each lid clamp tab of said funnel being equidistant from the top wall of said funnel, and with the outside diameter of the lid clamp tabs of said funnel being equal to the outside
30 diameter of the lid clamp tabs of said base.

 17. The vacuum filtration apparatus of claim 16 wherein said vacuum filtration apparatus contains a lid, with the outer wall of said lid being segmented by a plurality of slots in said outer wall, with each
35 slot creating a gap in the bottom surface of said outer wall,

with the height of said slots being less than the height of the inner surface of said outer wall of said lid, and

with the height of the inner surface of said
 5 outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid clamp tab of said funnel and the top wall of said funnel, and with the height of inner surface of said
 10 outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid clamp tab of said base and the top outer wall of said base,

with the diameter of said inner surface of said outer wall of said lid being less than the outside
 15 diameter of the lid clamp tabs of said base,

whereby said plurality of slots in said outer wall of said lid allows said outer wall of said lid to flex,

whereby said flexing of said outer wall of said
 20 lid allows said lid to be releasably attached to the one or more lid clamp tabs of said funnel with a fit that prevents said lid from accidentally disengaging from said funnel, and allows said lid to be removed from said funnel with one hand, as the outside
 25 diameter of the lid clamp tabs of said funnel vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances,

whereby said flexing of said outer wall of said
 30 lid allows said lid to be releasably attached to the one or more lid clamp tabs of said base with a fit that prevents said lid from accidentally disengaging from said base, and allows said lid to be removed
 35 from said base with one hand, as the outside diameter of the lid clamp tabs of said base vary over the normal production range of dimensional tolerances,

and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances.

18. The vacuum filtration apparatus of claim 17
5 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a heat seal, said seal forming a closed loop.

19. The vacuum filtration apparatus of claim 17
10 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with an ultrasonic seal, said seal forming a closed loop.

20. The vacuum filtration apparatus of claim 17
15 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a solvent seal, said seal forming a closed loop.

21. The vacuum filtration apparatus of claim 17
20 wherein said vacuum filtration apparatus is disposable.

22. A vacuum filtration apparatus comprising:
a base containing a funnel well with a
filter seal surface disposed adjacent to the
25 bottom of the inside wall of said funnel well,
with a filter support means disposed in the bottom of said funnel well inside of said filter seal surface, with an outlet port disposed below said filter support means, said outlet port
30 being in fluid flow communication with said filter support means,

a funnel with an open top, with the bottom outside portion of said funnel releasably
attached to the inside wall of said funnel well
35 of said base, where the releasable attachment between said funnel and said base is an interference fit between the outer edge of one

or more integral flexible funnel seal rings protruding from the bottom outer periphery of said funnel, and the inside wall of said funnel well of said base,

5 a filter means disposed in the bottom portion of said funnel well with the downstream surface of said filter means lying in the same plane as said filter seal surface, said filter means releasably sealed between said filter seal surface of said base and the bottom surface of said of said funnel,

whereby said one or more integral flexible funnel seal rings provide a releasable attachment between said funnel and said base, 15 over the normal production range of dimensional tolerances of said interior side wall of said funnel well, and over the normal production range of dimensional tolerances of the outer edge of said one or more integral flexible funnel seal rings,

whereby the integral flexible funnel seal rings of said funnel allow the funnel to be seated in said funnel well of said base so as to provide a leak tight seal between said filter seal surface of said base and the bottom surface of said of said funnel over the normal 25 production range of dimensional tolerances of said interior side wall of said funnel well of said base, and over the normal production range of dimensional tolerances of the outer edge of said one or more integral flexible funnel seal rings of said funnel.

23. The vacuum filtration apparatus of claim 22 wherein the top surface of the filter support means 35 is disposed below said filter seal surface, thereby creating a pad well below said filter seal surface.

24. The vacuum filtration apparatus of claim 23 wherein an absorbent pad is disposed in said pad well, with the downstream surface of said absorbent pad resting on the top surface of said filter support means, and with a portion of the downstream surface of said filter means resting on the upstream surface of said absorbent pad.

25. The vacuum filtration apparatus of claim 24 wherein the thickness of said absorbent pad is substantially greater than the height of said pad well,

whereby the outer periphery of the absorbent pad is compressed by the filter means,

whereby said absorbent pad exerts an upward force on the downstream side of said filter means,

whereby said filter means remains in tension in both the dry and wet states,

whereby said filter means remains wrinkle free in both the dry and wet states.

26. The vacuum filtration apparatus of claim 22 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a heat seal, said seal forming a closed loop.

27. The vacuum filtration apparatus of claim 22 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with an ultrasonic seal, said seal forming a closed loop.

28. The vacuum filtration apparatus of claim 22 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a solvent seal, said seal forming a closed loop.

29. The vacuum filtration apparatus of claim 22 wherein said base contains one or more lid clamp tabs protruding from the outside wall of said base, with

the bottom edge of each lid clamp tab of said base being equidistant from the top outer wall of said base.

30. The vacuum filtration apparatus of claim 29
5 wherein said funnel contains one or more lid clamp tabs protruding from the outside wall of said funnel, with the bottom edge of each lid clamp tab of said funnel being equidistant from the top wall of said funnel, and with the outside diameter of the lid
10 clamp tabs of said funnel being equal to the outside diameter of the lid clamp tabs of said base.

31. The vacuum filtration apparatus of claim 30 wherein said vacuum filtration apparatus contains a lid, with the outer wall of said lid being segmented
15 by a plurality of slots in said outer wall, with each slot creating a gap in the bottom surface of said outer wall,

with the height of said slots being less than the height of the inner surface of said outer wall of
20 said lid,

with the height of the inner surface of said outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid clamp tab of said funnel and the top wall of said
25 funnel, and with the height of inner surface of said outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid clamp tab of said base and the top outer wall of said base,

30 with the diameter of said inner surface of said outer wall of said lid being less than the outside diameter of the lid clamp tabs of said base,

whereby said plurality of slots in said outer wall of said lid allows said outer wall of said lid
35 to flex,

whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the

one or more lid clamp tabs of said funnel with a fit that prevents said lid from accidentally disengaging from said funnel, and allows said lid to be removed from said funnel with one hand, as the outside
 5 diameter of the lid clamp tabs of said funnel vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances,

10 whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the one or more lid clamp tabs of said base with a fit that prevents said lid from accidentally disengaging from said base, and allows said lid to be removed
 15 from said base with one hand, as the outside diameter of the lid clamp tabs of said base vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal
 20 production range of dimensional tolerances.

32. The vacuum filtration apparatus of claim 31 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a heat seal, said seal
 25 forming a closed loop.

33. The vacuum filtration apparatus of claim 31 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with an ultrasonic seal,
 30 said seal forming a closed loop.

34. The vacuum filtration apparatus of claim 31 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a solvent seal, said
 35 seal forming a closed loop.

35. The vacuum filtration apparatus of claim 31 wherein said vacuum filtration apparatus is disposable.

36. A vacuum filtration apparatus comprising:

5 a base containing a funnel well with a filter seal surface disposed adjacent to the bottom of the inside wall of said funnel well, with a filter support means disposed in the bottom of said funnel well inside of said filter seal surface, with the top surface of the filter support means disposed below said filter seal surface, thereby creating a pad well below said filter seal surface, with an outlet port disposed below said filter support means, said outlet port being in fluid flow communication with said filter support means,

10 a funnel with an open top, with the bottom outside portion of said funnel releasably attached to the inside wall of said funnel well of said base, where the releasable attachment between said funnel and said base is an interference fit between the outer wall of said funnel, and the inside wall of said funnel well of said base,

20 a filter means disposed in the bottom portion of said funnel well with the downstream surface of said filter means lying in the same plane as said filter seal surface, said filter means releasably sealed between said filter seal surface of said base and the bottom surface of said of said funnel,

25 an absorbent pad disposed in said pad well, with the downstream surface of said absorbent pad resting on the top surface of said filter support means, and with a portion of the downstream surface of said filter means resting on the upstream surface of said absorbent pad,

with the thickness of said absorbent pad being substantially greater than the height of said pad well,

whereby the outer periphery of the absorbent pad
5 is compressed by the filter means,

whereby said absorbent pad exerts an upward force on the downstream side of said filter means,

whereby said filter means remains in tension in both the dry and wet states,

10 whereby said filter means remains wrinkle free in both the dry and wet states.

37. The vacuum filtration apparatus of claim 36 wherein said base contains one or more lid clamp tabs protruding from the outside wall of said base, with
15 the bottom edge of each lid clamp tab of said base being equidistant from the top outer wall of said base.

38. The vacuum filtration apparatus of claim 37 wherein said funnel contains one or more lid clamp
20 tabs protruding from the outside wall of said funnel, with the bottom edge of each lid clamp tab of said funnel being equidistant from the top wall of said funnel, and with the outside diameter of the lid clamp tabs of said funnel being equal to the outside
25 diameter of the lid clamp tabs of said base.

39. The vacuum filtration apparatus of claim 38 wherein said vacuum filtration apparatus contains a lid, with the outer wall of said lid being segmented by a plurality of slots in said outer wall, with each
30 slot creating a gap in the bottom surface of said outer wall,

with the height of said slots being less than the height of the inner surface of said outer wall of said lid,

35 with the height of the inner surface of said outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid

clamp tab of said funnel and the top wall of said
funnel, and with the height of inner surface of said
outer wall of said lid being equal to or greater than
the distance between the bottom edge of each lid
5 clamp tab of said base and the top outer wall of said
base,

with the diameter of said inner surface of said
outer wall of said lid being less than the outside
diameter of the lid clamp tabs of said base,

10 whereby said plurality of slots in said outer
wall of said lid allows said outer wall of said lid
to flex,

whereby said flexing of said outer wall of said
lid allows said lid to be releasably attached to the
15 one or more lid clamp tabs of said funnel with a fit
that prevents said lid from accidentally disengaging
from said funnel, and allows said lid to be removed
from said funnel with one hand, as the outside
diameter of the lid clamp tabs of said funnel vary
20 over the normal production range of dimensional
tolerances, and as the inside diameter of said inner
surface of said outer wall of said lid vary over the
normal production range of dimensional tolerances,

whereby said flexing of said outer wall of said
25 lid allows said lid to be releasably attached to the
one or more lid clamp tabs of said base with a fit
that prevents said lid from accidentally disengaging
from said base, and allows said lid to be removed
from said base with one hand, as the outside diameter
30 of the lid clamp tabs of said base vary over the
normal production range of dimensional tolerances,
and as the inside diameter of said inner surface of
said outer wall of said lid vary over the normal
production range of dimensional tolerances.

35 40. The vacuum filtration apparatus of claim 39
wherein a portion of the filter means that is in
contact with said filter seal surface, is sealed to

said filter seal surface with a heat seal, said seal forming a closed loop.

41. The vacuum filtration apparatus of claim 39 wherein a portion of the filter means that is in
5 contact with said filter seal surface, is sealed to said filter seal surface with an ultrasonic seal, said seal forming a closed loop.

42. The vacuum filtration apparatus of claim 39 wherein a portion of the filter means that is in
10 contact with said filter seal surface, is sealed to said filter seal surface with a solvent seal, said seal forming a closed loop.

43. The vacuum filtration apparatus of claim 39 wherein said vacuum filtration apparatus is
15 disposable.

44. A vacuum filtration apparatus comprising:
a base containing a funnel well with a
filter seal surface disposed adjacent to the
bottom of the inside wall of said funnel well,
20 with a filter support means disposed in the bottom of said funnel well inside of said filter seal surface, with the top surface of the filter support means disposed below said filter seal surface, thereby creating a pad well below said
25 filter seal surface, with an outlet port disposed below said filter support means, said outlet port being in fluid flow communication with said filter support means, with said base containing one or more lid clamp tabs protruding from the outside wall of said base, with the
30 bottom edge of each lid clamp tab of said base being equidistant from the top outer wall of said base,

down →
sketch →

a funnel with an open top, with the bottom
35 outside portion of said funnel releasably attached to the inside wall of said funnel well of said base, where the releasable attachment

between said funnel and said base is an interference fit between the outer wall of said funnel, and the inside wall of said funnel well of said base, said funnel containing one or more lid clamp tabs protruding from the outside wall of said funnel, with the bottom edge of each lid clamp tab of said funnel being equidistant from the top wall of said funnel, and with the outside diameter of the lid clamp tabs of said funnel being equal to the outside diameter of the lid clamp tabs of said base,

a filter means disposed in the bottom portion of said funnel well with the downstream surface of said filter means lying in the same plane as said filter seal surface, said filter means releasably sealed between said filter seal surface of said base and the bottom surface of said of said funnel,

an absorbent pad disposed in said pad well, with the downstream surface of said absorbent pad resting on the top surface of said filter support means, and with a portion of the downstream surface of said filter means resting on the upstream surface of said absorbent pad,

a lid, with the outer wall of said lid being segmented by a plurality of slots in said outer wall, with each slot creating a gap in the bottom surface of said outer wall,

with the height of said slots being less than the height of the inner surface of said outer wall of said lid,

with the height of the inner surface of said outer wall of said lid being equal to or greater than the distance between the bottom edge of each lid clamp tab of said funnel and the top wall of said funnel, and with the height of inner surface of said outer wall of said lid

being equal to or greater than the distance between the bottom edge of each lid clamp tab of said base and the top outer wall of said base, with the diameter of said inner surface of said outer wall of said lid being less than the outside diameter of the lid clamp tabs of said base,

whereby said plurality of slots in said outer wall of said lid allows said outer wall of said lid to flex,

whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the one or more lid clamp tabs of said funnel with a fit that prevents said lid from accidentally disengaging from said funnel, and allows said lid to be removed from said funnel with one hand, as the outside diameter of the lid clamp tabs of said funnel vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances,

whereby said flexing of said outer wall of said lid allows said lid to be releasably attached to the one or more lid clamp tabs of said base with a fit that prevents said lid from accidentally disengaging from said base, and allows said lid to be removed from said base with one hand, as the outside diameter of the lid clamp tabs of said base vary over the normal production range of dimensional tolerances, and as the inside diameter of said inner surface of said outer wall of said lid vary over the normal production range of dimensional tolerances.

45. The vacuum filtration apparatus of claim 44 wherein a portion of the filter means that is in
35 contact with said filter seal surface, is sealed to said filter seal surface with a heat seal, said seal forming a closed loop.

46. The vacuum filtration apparatus of claim 44 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with an ultrasonic seal,
5 said seal forming a closed loop.

47. The vacuum filtration apparatus of claim 44 wherein a portion of the filter means that is in contact with said filter seal surface, is sealed to said filter seal surface with a solvent seal, said
10 seal forming a closed loop.

48. The vacuum filtration apparatus of claim 44 wherein said vacuum filtration apparatus is disposable.

49. A vacuum filtration apparatus comprising:
15 a base containing a funnel well with a filter seal surface disposed adjacent to the bottom of the inside wall of said funnel well, with a filter support means disposed in the bottom of said funnel well inside of said filter
20 seal surface, with an outlet port disposed below said filter support means, said outlet port being in fluid flow communication with said filter support means,

a funnel with an open top, with the bottom
25 outside portion of said funnel releasably attached to the inside wall of said funnel well of said base,

a filter seal ring press fitted into said
funnel well of said base with an interference
30 fit between the end surface of said filter seal ring and the inside wall of said funnel well,

a filter means disposed in the bottom
portion of said funnel well with the downstream
surface of said filter means lying in the same
35 plane as said filter seal surface, said filter means sealed with a compression seal between the

filter seal surface of said filter seal ring,
and the filter seal surface of said base.

50. The vacuum filtration apparatus of claim 49
wherein the releasable attachment between said funnel
5 and said base is an interference fit between the
outer wall of said funnel, and the inside wall of
said funnel well of said base.

51. The vacuum filtration apparatus of claim 49
wherein the releasable attachment between said funnel
10 and said base is an interference fit between one or
more integral flexible funnel seal rings protruding
from the bottom outer periphery of said funnel, and
the inside wall of said funnel well of said base,

whereby said one or more integral flexible
15 funnel seal rings provide a releasable attachment
between said funnel and said base, over the normal
production range of dimensional tolerances of said
interior side wall of said funnel well of said base,
and over the normal production range of dimensional
20 tolerances of the outer edge of said one or more
integral flexible funnel seal rings of said funnel.

52. The vacuum filtration apparatus of claim 51
wherein the top surface of the filter support means
is disposed below said filter seal surface, thereby
25 creating a pad well below said filter seal surface.

53. The vacuum filtration apparatus of claim 52
wherein an absorbent pad is disposed in said pad
well, with the downstream surface of said absorbent
pad resting on the top surface of said filter support
30 means, and with a portion of the downstream surface
of said filter means resting on the upstream surface
of said absorbent pad.

54. The vacuum filtration apparatus of claim 53
wherein the thickness of said absorbent pad is
35 substantially greater than the height of said pad
well,

whereby the outer periphery of the absorbent pad is compressed by the filter means,

whereby said absorbent pad exerts an upward force on the downstream side of said filter means,

5 whereby said filter means remains in tension in both the dry and wet states,

whereby said filter means remains wrinkle free in both the dry and wet states.

10 55. A vacuum filtration apparatus comprising:
a base containing a funnel well with a filter seal surface disposed adjacent to the bottom of the inside wall of said funnel well, with a filter support means disposed in the bottom of said funnel well inside of said filter seal surface, with said filter support means containing a seal surface at its outer periphery, with the top surface of the filter support means disposed below said filter seal surface, thereby creating a pad well below said filter seal surface, with an outlet port disposed below said filter support means, said outlet port being in fluid flow communication with said filter support means,

15 a funnel with an open top, with the bottom outside portion of said funnel releasably attached to the inside wall of said funnel well of said base,

20 a lower filter means disposed in the bottom of said pad well,

25 an absorbent pad disposed in said pad well above said lower filter means, with the downstream surface of said absorbent pad resting on the upstream surface of said lower filter means, with the outer periphery of said lower filter means sealed between said seal surface of
30 said filter support means and the outer
35

periphery of the downstream surface of said
absorbent pad,

a filter means disposed in the bottom
portion of said funnel well with the downstream
surface of said filter means lying in the same
plane as said filter seal surface of said base,
said filter means releasably sealed between said
filter seal surface of said base and the bottom
surface of said of said funnel.

56. The vacuum filtration apparatus of claim 54
wherein the releasable attachment between said funnel
and said base is an interference fit between the
outer wall of said funnel, and the inside wall of
said funnel well of said base.

57. The vacuum filtration apparatus of claim 54
wherein said filter seal surface of said base
contains a groove in at least a portion of its outer
periphery.